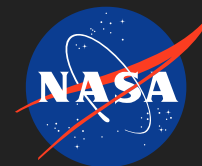


Lightweight, Wearable Metal Rubber-Textile Sensor for In-Situ Lunar Autonomous Health Monitoring, Phase II

Completed Technology Project (2007 - 2009)



Project Introduction

This NASA Phase II SBIR program would develop comfortable garments with multiple integrated sensor functions for the monitoring of astronauts during long duration space missions. During Phase I, NanoSonic demonstrated the feasibility of using its patented Metal Rubber

TM

sheet and fabric materials as both sensor elements and highly flexible electrodes integrated into prototype instrumented garments. Heart rate and EKG data taken using the Metal Rubber

TM

sensors are essentially identical to those obtained using standard biomedical instrumentation. The combined high electrical conductivity, low mechanical modulus, and environmental robustness of the Metal Rubber

TM

materials make them a lightweight, stretchy and comfortable alternative to conventional metal wiring and cabling. During the proposed Phase II program, NanoSonic would work with a large-volume U.S. textile manufacturer, the sensor and electronics design group of a major aerospace company, and a biomedical sensor and devices laboratory of Food and Drug Administration. NanoSonic would improve the Metal Rubber

TM

materials and methods for their integration as sensor and interconnect materials into instrumented garments, design, fabricate and evaluate the performance of sensor jerseys based on the results of Phase I tests, develop data acquisition electronics needed to interface to standard storage and communication modules, and investigate requirements for scaled-up manufacturing.



Lightweight, Wearable Metal Rubber-Textile Sensor for In-Situ Lunar Autonomous Health Monitoring, Phase II

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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Johnson Space Center (JSC)

Responsible Program:

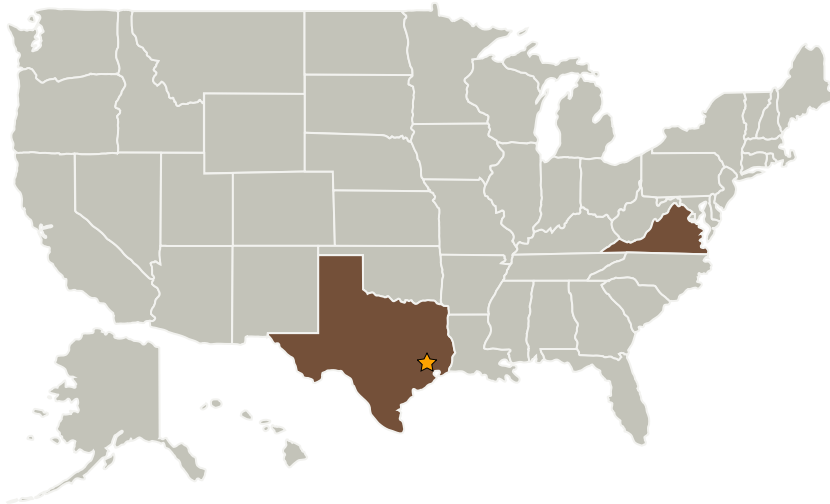
Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Johnson Space Center(JSC)	Lead Organization	NASA Center	Houston, Texas
Nanosonic, Inc.	Supporting Organization	Industry	Pembroke, Virginia

Primary U.S. Work Locations

Texas	Virginia
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Project Transitions

 **November 2007:** Project Start **November 2009:** Closed out

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
 - └ TX06.3 Human Health and Performance
 - └ TX06.3.4 Contact-less / Wearable Human Health and Performance Monitoring